

2 What is claimed is

3 1. A workpiece holder for use with a lathe assembly comprising:

4 a base mountable on the carriage of a lathe, and

5 at least one flange attached to and extending upwardly from said base, said flange having

6 a workpiece support opening therethrough, said opening being sized for free longitudinal

7 movement of said workpiece through said opening while preventing lateral movement of

8 said workpiece beyond a predetermined tolerance.

9 2. The workpiece holder of claim 1 further comprising a bushing assembly insertable into

10 said workpiece support opening.

11 3. The workpiece holder of claim 2, wherein said bushing assembly is adapted to receive a

12 workpiece of varying size.

13 4. The workpiece holder of claim 1 further comprising at least one bearing assembly

14 insertable into said workpiece support opening.

15 5. The workpiece holder of claim 4 further comprising a bushing assembly insertable into

16 said bearing assembly.

17 6. The workpiece holder of claim 5 wherein said bushing assembly is adapted to receive a

18 workpiece of varying size.

19 7. The workpiece holder of claim 1 wherein said workpiece holder is traversable along at

20 least a portion of the length of the workpiece.

21 8. The workpiece holder of claim 1 wherein said workpiece support opening is

22 perpendicularly disposed within said at least one flange.

- 1 9. The workpiece holder of claim 8 wherein said housing comprises a second flange,
2 wherein said channel is disposed between said at least one flange and said second flange.
- 3 10. The workpiece holder of claim 9 further comprising a passage perpendicularly formed in
4 said second flange, said passage being substantially coaxial with said workpiece support opening.
- 5 11. The workpiece holder of claim 10 wherein said passage is capable of supporting a
6 machined portion of the workpiece.
- 7 12. The workpiece holder of claim 9 further comprising a supporting sleeve securable to said
8 second flange.
- 9 13. The workpiece holder of claim 1 further comprising a carriage included with the lathe
10 assembly capable of moving along the length of the lathe assembly wherein said workpiece
11 holder is securable to the carriage.
- 12 14. A method of machining a workpiece comprising:
13 (a) securing one end of a workpiece in a lathe assembly;
14 (b) supporting the unsecured portion of the workpiece within a workpiece holder at some
15 discrete position along the length of the workpiece; and
16 (c) machining the workpiece with a cutting element that is connectable to the workpiece
17 holder at a location proximate to the position where the workpiece is supported by said
18 workpiece holder.
- 19 15. The method of claim 14 further comprising moving said workpiece holder and cutting
20 element together in a direction that is substantially parallel to the axis of the workpiece.

- 1 16. The method of claim 15 further comprising moving said workpiece holder and cutting
 - 2 element together toward the secured end of the workpiece.
 - 3 17. The method of claim 14 further comprising varying the location of the cutting element
 - 4 with respect to the axis of the workpiece during the machining process.